

CLAIMS

What Is Claimed Is:

- 5 1. An implantable stimulation lead system, comprising:
 a lead including a lead body dimensioned for placement
 inside the coronary sinus region, the lead body having at least one
 electrode positioned at a distal end of the lead body, the distal end
10 of the lead body including a distal tip, the lead further having a
 lumen extending the length of the lead and communicating with an
 aperture in the distal tip; and
 a device dimensioned for insertion within the lumen, the
 device including:
 a main body;
15 a steering knob secured to a proximal extremity of the
 main body; and
 a flexible distal portion secured to a distal extremity of
 the main body, the main body having a length such that,
 with the main body of the device substantially completely
20 advanced within the lead, the flexible distal portion of the
 device projects distally from the aperture in the distal tip of
 the lead body.
- 25 2. The lead system defined in claim 1 in which:
 the main body and the flexible distal portion of said device
 comprise a unitary structure.
- 30 3. The lead system defined in claim 1 in which:
 the main body and flexible distal portion of said device
 comprise separate structures joined at the distal extremity of the
 main body.

4. The lead system defined in claim 1 in which:
the main body is formed of wire.
5. The lead system defined in claim 4 in which:
the flexible distal portion of the device comprises a wire coil.
6. The lead system defined in claim 5 in which:
the wire coil comprising the flexible distal portion of the
device has an outer diameter equal to that of the main body.
7. The lead system defined in claim 5 in which:
the wire coil comprising the flexible distal portion of the
device has an outer diameter smaller than that of the main body.
8. The lead system defined in claim 4 in which:
the flexible distal portion of said device comprises a
proximal section and a distal section, the distal section being more
flexible than the proximal section.
9. The lead system defined in claim 8 in which:
the proximal section and the distal section of the distal
portion of the device comprise wire coils.
10. The lead system defined in claim 9 in which:
the wire coil comprising the distal section has an outer
diameter smaller than that of the wire coil comprising the proximal
section.
11. The lead system defined in claim 10 in which:
the wire coil comprising the proximal section has an outer
diameter substantially the same as that of the main body.

12. The lead system defined in claim 10 in which:
the wire coil comprising the proximal section has an outer diameter smaller than that of the main body.
- 5 13. The lead system defined in claim 8 in which:
the proximal and distal sections comprise a unitary structure.
- 10 14. The lead system defined in claim 13 in which:
the proximal and distal sections are cylindrical, the proximal section having an outer diameter smaller than that of the main body and the distal section having an outer diameter smaller than that of the proximal section.
- 15 15. The lead system defined in claim 13 in which:
the proximal section is cylindrical and has a diameter smaller than that of the main body, and wherein the distal section comprises a thin leaf.
- 20 16. The lead system defined in claim 15 in which:
the thin leaf has a rectangular shape, the leaf having a width equal to the diameter of the proximal section.
- 25 17. The lead system defined in claim 16 in which:
the flexible distal portion of the device includes a wire coil surrounding the proximal and distal sections of the flexible distal portion.
- 30 18. The lead system defined in claim 17 in which:
the thin leaf includes a distal tip, the wire coil surrounding the proximal and distal sections of the flexible distal portion having an end attached to the distal tip of the thin leaf and another end attached to the distal extremity of the main body.

19. A device for delivering a body implantable lead, the device comprising:

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a main wire body having a proximal extremity and a distal extremity;

a steering knob secured to the proximal extremity of the main wire body; and

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a flexible distal portion having a proximal end secured to the distal extremity of the main body, the flexible distal portion comprising a wire coil.

20. The device defined in claim 19 in which:

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the wire coil comprising the flexible distal portion of the device has an outer diameter substantially the same as that of the main body.

21. The device defined in claim 19 in which:

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the wire coil comprising the flexible distal portion of the device has an outer diameter smaller than that of the main body.

22. The device defined in claim 19 in which:

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the wire coil comprising the flexible distal portion of said device includes a proximal section and a distal section, the distal section being more flexible than the proximal section.

23. The device defined in claim 22 in which:

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the distal section of the wire coil has an outer diameter smaller than that of the proximal section of the wire coil.

24. The device defined in claim 23 in which:

the proximal section of the wire coil has an outer diameter substantially equal to that of the main body.

25. The device defined in claim 23 in which:
the proximal section of the wire coil has an outer diameter
smaller than that of the main body.

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26. A device for delivering a body implantable lead, the device
comprising:

a main wire body having a proximal extremity and a distal
extremity;

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a steering knob secured to the proximal extremity of the
main wire body; and

a flexible distal portion having a proximal end secured to the
distal extremity of the main body, the flexible distal portion of said
device comprising a proximal section and a distal section, the distal
section being more flexible than the proximal section.

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27. The device defined in claim 26 in which:
the proximal section and the distal section of the flexible
distal portion of the device comprise wire coils.

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28. The device defined in claim 27 in which:
the wire coil comprising the distal section has an outer
diameter smaller than that of the wire coil comprising the proximal
section.

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29. The device defined in claim 28 in which:
the wire coil comprising the proximal section has an outer
diameter substantially the same as that of the main body.

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30. The device defined in claim 28 in which:
the wire coil comprising the proximal section has an outer
diameter smaller than that of the main body.

31. The device defined in claim 26 in which:
the proximal and distal sections comprise a unitary
structure.

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32. The device defined in claim 31 in which:
the proximal and distal sections are cylindrical, the proximal section
having an outer diameter smaller than that of the main body and the distal
section having an outer diameter smaller than that of the proximal section.

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33. The device defined in claim 31 in which:
the proximal section is cylindrical and has a diameter smaller than
that of the main body, and wherein the distal section comprises a thin leaf.

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34. The device defined in claim 33 in which:
the thin leaf has a rectangular shape with a width substantially the
same as the diameter of the proximal section.

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35. The device defined in claim 34 in which:
the flexible distal portion of the device includes a wire coil
surrounding the proximal and distal sections of the flexible distal portion.

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36. The device defined in claim 35 in which:
the thin leaf includes a distal tip, the wire coil surrounding the
proximal and distal sections of the flexible distal portion having one end
attached to the distal tip of the thin leaf and another end attached to the
proximal end of the flexible distal portion.

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37. A method of implanting an electrode of an endocardial lead
at an implantation site within a cardiac vein accessible via the superior
vena cava (SVC), coronary os and the coronary sinus region, the lead
including a distal portion and a lumen communicating with an aperture in

a tip electrode, said implanting being effected using a device comprising a main body, a steering knob secured to a proximal extremity of the main body and a flexible distal portion affixed to and extending distally from a distal extremity of the main body, the method comprising the steps of:

- 5 inserting the device into the lumen of the lead with the
flexible distal portion substantially entirely contained within the
distal portion of the lead;
feeding an introducer sheath along a predetermined path
including at least the SVC and coronary os;
10 inserting the distal portion of the lead into the introducer
sheath and advancing the lead until the distal portion of lead
reaches the coronary sinus region;
advancing the device relative to the lead to extend the
flexible distal portion of the device from the aperture in the tip
15 electrode;
manipulating the steering knob on the proximal end of the
main body of the device as necessary to maneuver the flexible
distal portion of the device into said implantation site;
slidably advancing the lead over the device to move said
20 electrode into place at the implantation site;
retracting the device and removing the device from the lead;
and
retracting and removing the introducer sheath.